

REMARKS

Reconsideration and allowance of the above-referenced application are respectfully requested.

Upon entry of this amendment, claims 1-87 will remain in the application. Of these claims, claims 1-7, 16-36, 45-65, and 74-87 have been withdrawn from consideration.

Claim Objections

Claim 44 was objected to. Claim 44 has been amended to obviate the objection. Furthermore, claims 8, 12, 37, 41, 66, and 70 have been amended to clarify that the Y-channel is the luminance channel of the color video image.

Claim Rejections - 35 USC § 102

Claims 8-10, 12-14, 37-39, 66-68, and 70-72 were rejected under 35 U.S.C. 102(b) as being allegedly anticipated by Yanagihara (US 5,374,958).

Applicant respectfully traverses the rejections.

Applicant teaches a video compression technique for reducing the level of chroma noise that results from any given value of the quantization parameter (QP) used during compression, thereby improving image quality. This is accomplished by utilizing a lower value of QP for the U (chroma)-channel than for the Y (luminance)-channel. Similarly, the quality of the V (chroma)-channel may also be improved by utilizing a lower QP value for the V-channel than for the Y-channel.

The Action states that a lower QP correlates to a lower resolution (section 6, "...wherein the second QP value is less than the first QP value (i.e., lower resolution)"). The Action is not clear as to what this lower resolution refers to and

possibly confuses quantization and spatial resolutions with its reference to Figure 1. Applicant submits that there appears to be some misunderstanding here. Applicant notes that as QP decreases, each frame's data is quantized to a finer resolution (i.e., more bits are used to convey a value). This improves image quality and subsequently uses more bits in the compressed representation. The finer quantization compensates for the lower spatial resolution of chroma samples, e.g., in a 4:2:0 video format.

References Cannot Be Combined Where Reference Teaches Away from Their Combination

"It is improper to combine references where the references teach away from their combination." **MPEP 2145**, citing *In re Grasselli*, 713 F.2d 731, 743, 218 USPQ 769, 779 (Fed. Cir. 1983).

Yanagihara teaches away from the present invention. Whereas the present invention teaches using a lower QP, and hence higher quantization resolution, for chroma than the corresponding luma QP, Yanagihara discloses forcing the chroma QP to a value equal to or larger than the luma QP. Yanagihara states in column 3, lines 53-56 that, "Since coarse quantization of color information is less noticeable than coarse quantization of luma information, the present invention uses an area shift process to more coarsely quantize the chrominance information..." Accordingly, Yanagihara discloses performing an area shift process that increases the quantization step sizes for the chrominance signals U, V, but not performing the area shift process on the luminance signal (column 6, lines 17-35 and FIG. 6). "The result is a reduction in the amount of information used to represent chrominance information..." (column 6, lines 10-12).

Consider exemplary independent claim 8, which recites in relevant part:

"...including utilizing a first QP value for the Y luminance channel of a color video image, and a second QP value for at least one of the U and V color channels of the color video image, wherein the second QP value is less than the first QP value."

Yanagihara discloses the exact opposite of the claimed invention. That is, Yanagihara teaches raising the QP of the chrominance signal above that of the luminance signal resulting in a reduction in the numbers of bits used to represent chrominance information. In contrast, Applicant teaches lowering the QP of the chrominance signal below that of the luminance signal (resulting in an increase in the number of bits used to represent chrominance information and an increase in the quality of the chrominance). Accordingly, Applicant submits that the Action has failed to make a prima facie case of anticipation, and that independent claims 8, 12, 37, 41, 66, and 70, and their respective dependencies, are allowable.

Claim Rejections - 35 USC § 103

Claims 11, 15, 40, 44, 69, and 73 were rejected under 35U.S.C 103(a) as being allegedly unpatentable over Yanagihara.

Claims 11, 15, 40, 44, 69, and 73 depend from allowable independent claims 8, 12, 37, 41, 66, and 70, respectively. Accordingly, Applicant submits that these claims are allowable for the reasons stated above and for their additional limitations.

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Respectfully submitted,

  
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